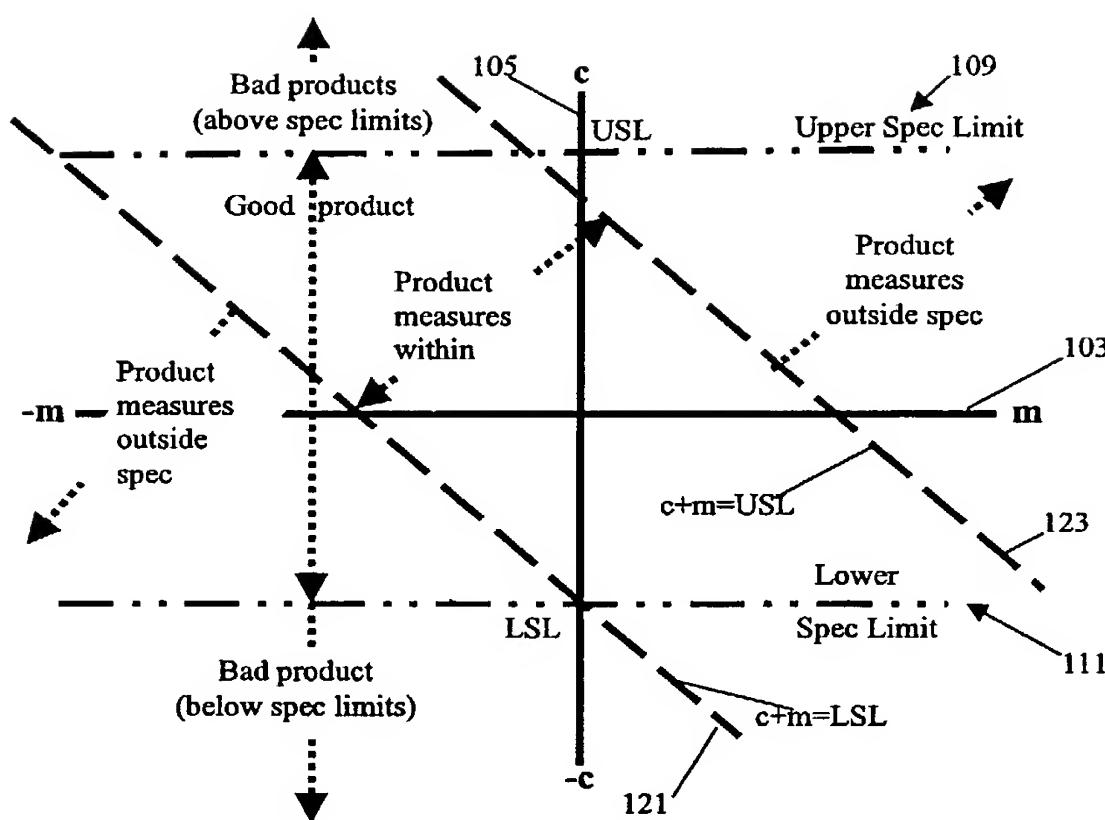
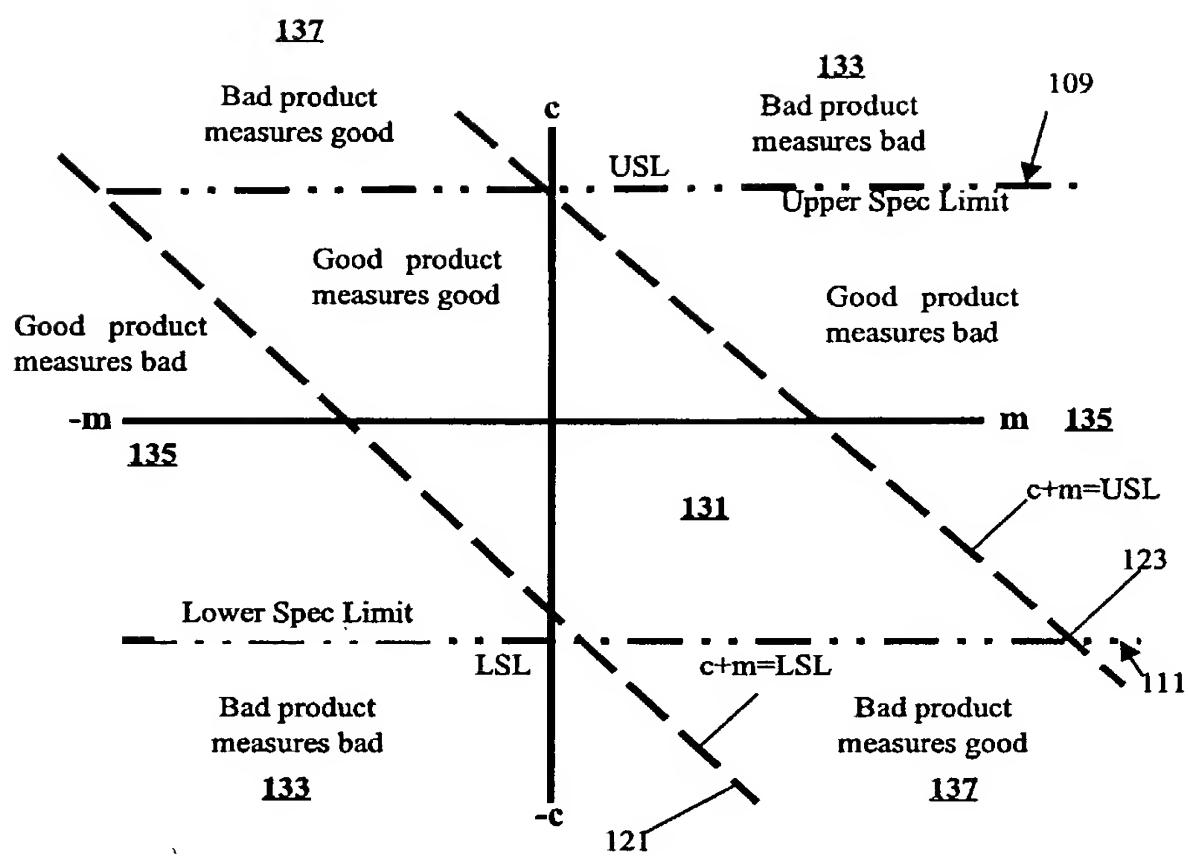


**FIG. 1**



**FIG. 2**



**FIG. 3**

401

Inspection Outcome	Probability of Outcome
1) product within its specification limit accepted	p1
2) product outside its specification is rejected	p2
3) product within its specification is rejected	p3
4) product outside its specification is accepted	p4

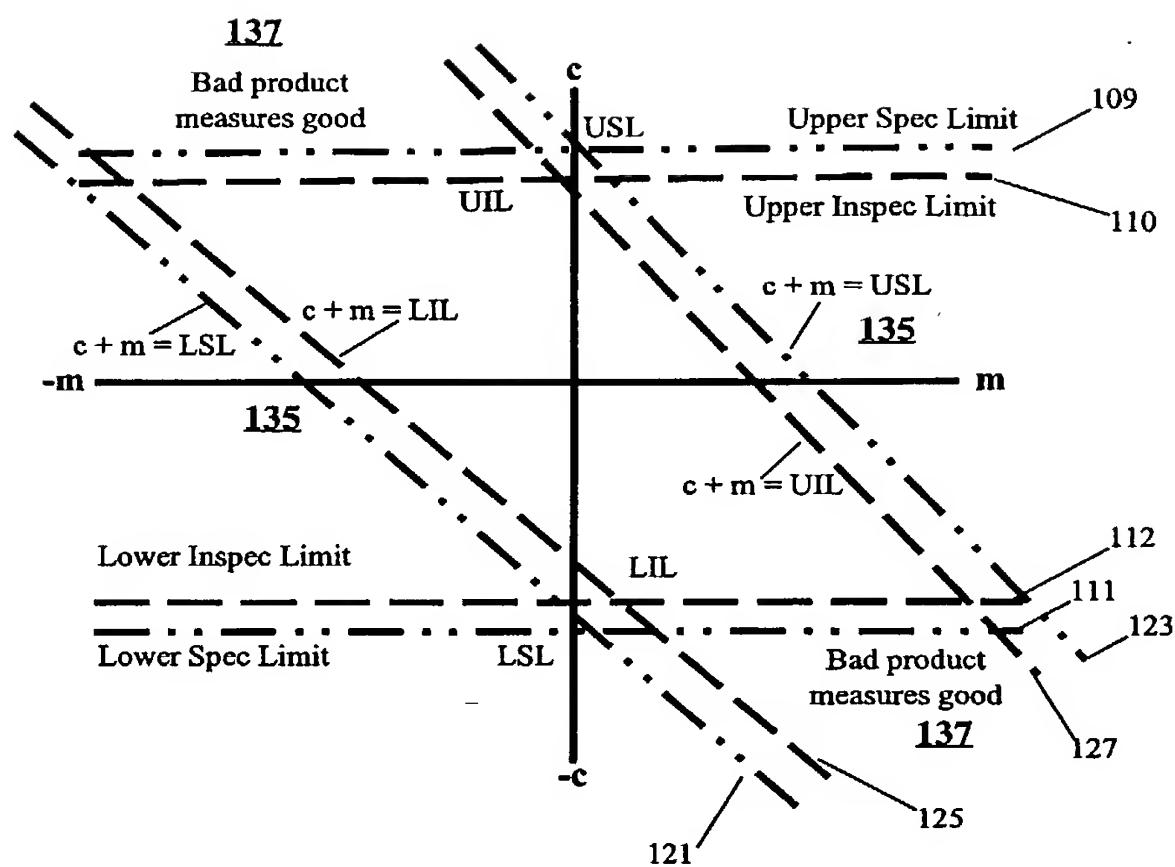
**Table 1. Inspection outcome probabilities**

411

Event	Unit cost per Event	Probability of Event	Cost per unit product
Product Inspection	CI	1	CI
Product Scrap/Rework	CR	$p_2 + p_3$	$(p_2 + p_3) * CR$
Escaping Defect	CE	$p_4$	$p_4 * CE$
Unnecessary rework		$p_3$	$p_3 * CR$

**Table 2. Costs and weighted contributions**

**FIG. 4**



**FIG. 5**

<b>First Inspection Outcome</b>	<b>Probability of Outcome</b>
<b>11) product within its specification limit accepted</b>	<b>p11</b>
<b>12) product outside its specification is rejected</b>	<b>p12</b>
<b>13) product within its specification is rejected</b>	<b>p13</b>
<b>14) product outside its specification is accepted</b>	<b>p14</b>
<b>Second Inspection Outcome</b>	
<b>21) product within its specification limit accepted</b>	<b>p21</b>
<b>22) product outside its specification is rejected</b>	<b>p22</b>
<b>23) product within its specification is rejected</b>	<b>p23</b>
<b>24) product outside its specification is accepted</b>	<b>p24</b>
<b>Table 3. Inspection outcome probabilities</b>	

FIG. 6

A Method and System for Assessing the Quality and Cost of Inspection

701

Event	Unit cost per Event	Probability of Event	Cost per unit product
First Product Inspection	CI1	1	CI1
Second Product Inspection	CI2	$p12+p13$	$(p12+p13)*CI2$
Product Scrap/Rework	CR	$p22+p23$	$(p22+p23)*CR$
Escaping Defect	CE	$p14+p24$	$(p14+p24)*CE$
Unnecessary rework		$p23$	$p23*CR$

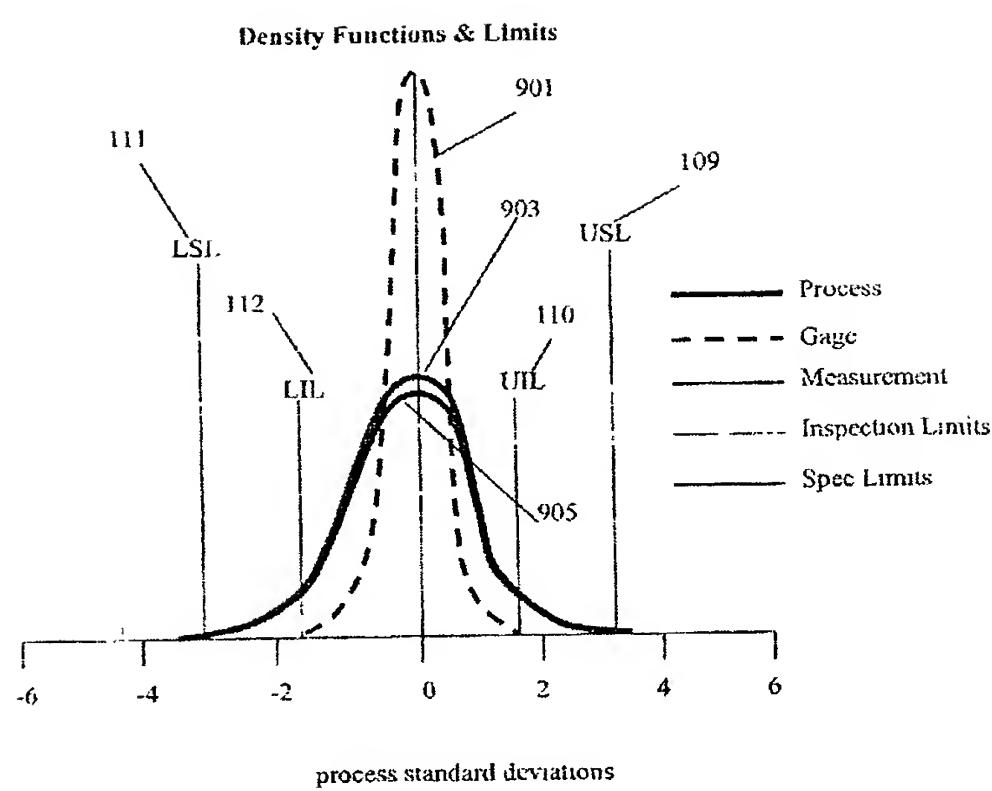
Table 4. Costs and weighted contributions

FIG. 7

801

<b>Process standard dev</b>	<b>0.0010</b>	inches
<b>Process center</b>	<b>10.0000</b>	inches
<b>Lower specification limit (LSL)</b>	<b>9.9970</b>	inches
<b>Upper specification limit (USL)</b>	<b>10.0030</b>	inches
<b>Calculated specification center</b>	<b>10.0000</b>	
<b>Lower inspection limit (LIL)</b>	<b>9.9985</b>	inches
<b>Upper inspection limit (UIL)</b>	<b>10.0015</b>	inches
<b>Calculated inspection center</b>	<b>10.0000</b>	
<b>Inspection bias</b>	<b>0.0000</b>	inches
<b>Enter std dev or gage R&amp;R</b>	<b>Gage noise std dev</b>	inches
	<b>% Gage R&amp;R</b>	<b>40</b> percent

**FIG. 8**



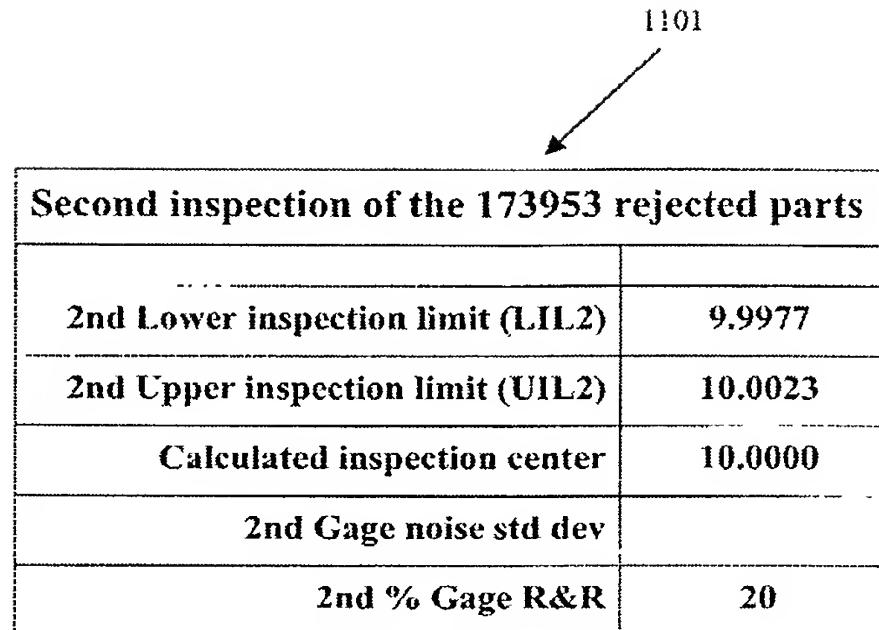
**FIG. 9**

1001

Inspected product judged against product spec limits (PPM)	
good product accepted	826047
good product rejected	171254
bad product accepted – escapes	1
bad product rejected	2699

FIG. 10

1101



Second inspection of the 173953 rejected parts	
2nd Lower inspection limit (LIL2)	9.9977
2nd Upper inspection limit (UIL2)	10.0023
Calculated inspection center	10.0000
2nd Gage noise std dev	
2nd % Gage R&R	20

FIG. 11

### Density Functions & Limits

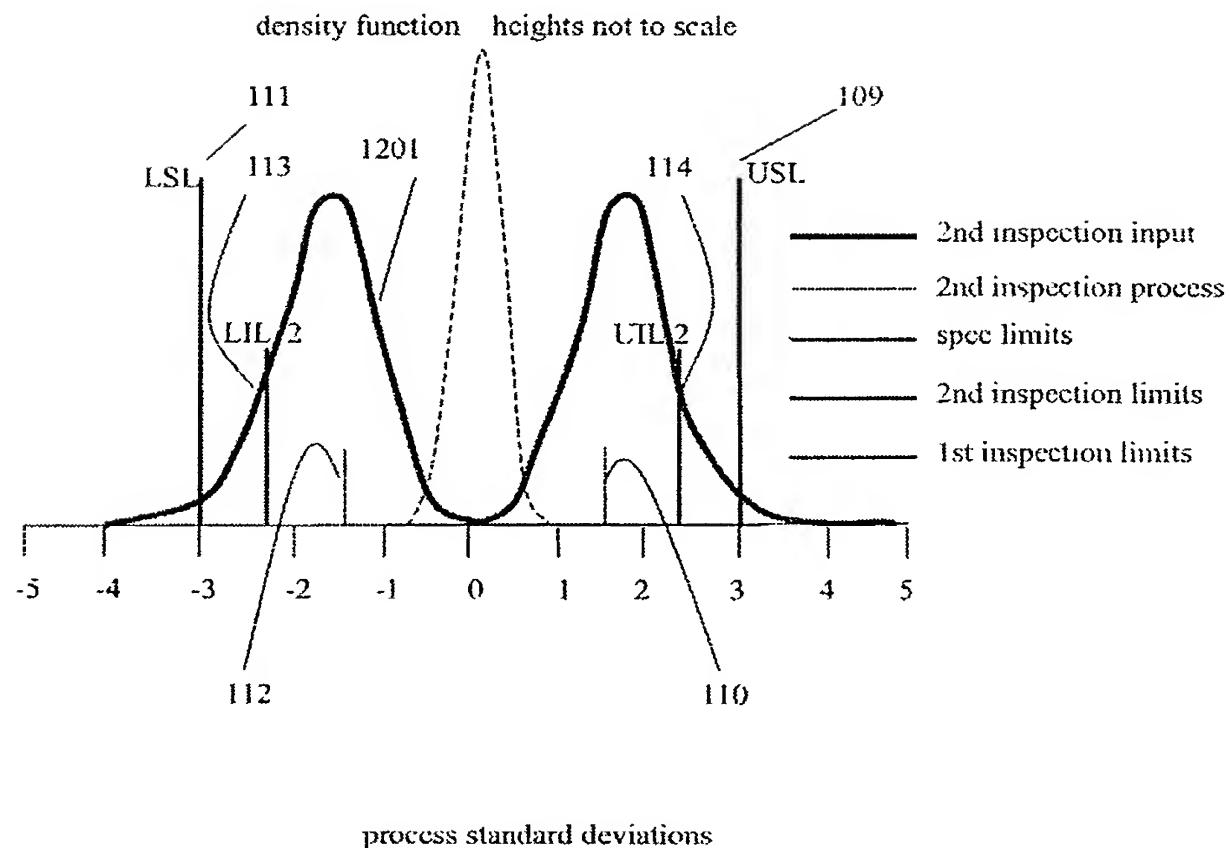


FIG. 12

1301

Reinspected product judged against spec limits (PPM)	
good parts accepted	149850
good parts rejected	21404
bad parts accepted -- escapes	1
bad parts rejected	2699

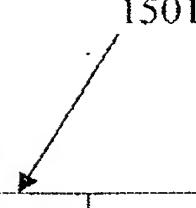
FIG. 13

1401



	Cost per part	probability of occurrence	
		inspect once	inspect twice
make	10.00	1.000000	1.000000
first inspection	1.00	1.000000	1.000000
second inspection	3.00	0.000000	0.173953
scrap/rework	6.00	0.173953	0.024102
escape	1000.00	0.000001	0.000001
<hr/>			
<b>Total Costs</b>			
		inspect once	inspect twice
make	10.00	10.00	
first inspection	1.00	1.00	
second inspection	0.00	0.52	
scrap/rework	1.04	0.14	
escape	0.00	0.00	
<b>TOTAL</b>	<b>12.04</b>	<b>11.67</b>	

FIG. 14



Total Costs	inspect once	inspect twice
make	10.00	10.00
first inspection	1.00	1.00
second inspection	0.00	0.35
scrap/rework	0.71	0.14
escape	0.00	0.00
<b>TOTAL</b>	<b>11.71</b>	<b>11.50</b>

**FIG. 15**